

ASD Weekly Highlights for the Week Ending 11-August-2006

Operations

August 7-13

From 07-AUG-2006 to 13-AUG-2006

Request Type	Hours	Percent Beam Activity
Beam Time to Target	108.00	100.00

Total Beam Activity Requested	108.00
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Recorded Activity Type	Hours	Percent of Total
Beam Time (delivered to Target)	68.20	76.37
Machine Studies (R&D)	19.60	21.95
Machine Studies (Remedial - to recover Beam Time)	1.50	1.68

Total Activity Recorded	89.30
Total Planned Beam Time	146.90
Total Downtime Recorded	78.70 53.57

Equipment Breakdown by Group, SubGroup and Sub_SubGroup

Group	SubGroup	Sub-SubGroup	Hours	%
Vacuum	Vacuum Diagnostics	Vacuum Gauges	7.00	8.89
RF Systems	LLRF - Low Level RF		2.30	2.92
RF Systems	HPRF - High Power RF		7.50	9.53
Cryogenics System	Cryomodules		2.50	3.18
Electrical Systems	LEBT Chopper		21.00	26.68
Electrical Systems	Power Supplies		6.00	7.62
Electrical Systems	AC Power Distribution	Motor Starter/Controller	.70	.89
Electrical Systems	HVCM - High Voltage		10.20	12.96
Protection Systems	Radiation Monitors	Chipmunks	.50	.64
Machine Protection System	Fast Protect – Latched		1.00	1.27
Cooling Systems -	DI		.70	.89
Cooling Systems -	DI	Pumps	8.70	11.05
Cooling Systems -	DI	Polish	.80	1.02
Cooling Systems -	DI	Instruments	.20	.25
Cooling Systems -	QMCS		3.60	4.57
Cooling Systems -	RFQ Chiller		6.00	7.62

Accelerator Physics

- Physics group / SRF task force:
- The Superconducting cavity task force had a three day opportunity to gather data. A total accelerating gradient reserve of about 120 MV/m above the present operating conditions has been identified so far. This should be sufficient to produce at least a 900 MeV beam. Additionally, much understanding has been gained on the signals observed from the SCL vacuum gauges. While there is still a concern on the HOM couplers for some of the cavities, much of the erratic vacuum behavior in other cavities has been identified as being caused by CCG gauges themselves.
- In the last couple of weeks we've made good progress on understanding the sources of the undesirable tilt of the beam at the target. The primary source is simply due to the offset injection painting. This source disappears on its own as we increase the beam intensity. There is a secondary source that causes a residual tilt of about 7 degrees. We believe the most likely cause of this tilt is minor magnet misalignments in the RTBT beam line. After a few more measurements with the temporary view screen that is mounted to the target face we will be in a good position to remove it during the September outage.
- Our focus in the Ring area is now shifting away from the tilted beam and use of the view screen toward understanding the causes of the high beam loss in the injection beam dump. This is the primary constraint in the Ring area that is preventing operations at higher beam powers.

RF Systems

- An Allen-Bradley control module, called a Block-IO, for Station RF-12 has failed. The failed part of the module simply powers lamps on the final amplifier in the tunnel so it has no effect on the operability of the station. The module is no longer available. We have on-hand the replacement hardware and are proceeding to assemble it in our lab and learn how to alter the control software to communicate with it.
- We continue studying the Low-Level RF system in an effort to provide control with high beam currents.

Ion Source

- After 6 weeks of operation, the cesium collar temperature had to be increased to restore operations to the ~20 mA level. Higher currents would require a second cesiation.
- An external cesium reservoir using elemental Cesium in ampoules has been successfully operated on the test stand. The system delivered 33 mA during 1.23 ms long pulses at 10 Hz. Higher duty cycles were avoided because the cesium collar overheated.
- The design of the LEBT proposed for the power upgrade project was presented at the 7th Charged Particle Optics Conference. It received substantial interest and support.

- Visiting the injector staff at ISIS gave a very favorable impression on their program to meet operational requirements at high duty-factor. We expect to adapt some of their ideas and implement it into our program.

Instrumentation and Controls

- Operations support went reasonable well for the Controls Group this week, with little down time attributed to control system causes.
- The new front end chiller was reviewed for control system compatibility, and successfully installed and operated.
- Channel access security for the Vacuum IOC was updated so that the Cryomodule insulating vacuum CCG instruments can be operated from the CHL control room by the cryogenic system operators.
- A new soft IOC was implemented to integrate the total site energy consumption. The new PV is CF_ST:PM_MWHrs:CurMnth. It will be added to the top-level screens and to the archives as appropriate. This soft IOC also calculates the CF rolling averages and monthly maximum values. It will replace a previously existing IOC that did some of this work.
- It is now possible to access the Central Equipment Room (CER) Servers via Remote IP (Accl-Vlan) with Linux. Previously this worked only with Windows.
- Two APC Power Distribution Units have been installed in two of the CER racks. These will be thoroughly tested in September during the shutdown. With these units, it is possible to log into the power strip via an IP address and reboot, shutdown, or individually configure the 24 Outlets on the strip remotely.
- Work continued on Target PPS As-Built Drawings.
- A new 4-channel high voltage VME module is now working on the BLM test stand.
- CCTV cameras are installed in target building. Ethernet cabling is installed and connectors are being terminated. The PoE (Power over Ethernet) is completed and will be energized when all wiring is confirmed.
- Diagnosis continues on a cooling fan in the hot cell that trips the MCC about every 5 minutes.
- The Stand Pelco CCTV in the High Bay is now powered. Images can be monitored in the control room on the fourth floor. Programming will be done when the other 3 cameras on the end effector are on the Pedestal Manipulator.
- There is progress on a number of Diagnostics electronics design projects. The new Integrating ADC interface board is here and tested; some replacement parts are required. The scraper analog front end is designed and waiting for PCB quote. The laser wire photodiode integrator PCB is complete and ready for production.

SRF Facility

SRF Task Force

Survey and Alignment

Cryo Systems

Mechanical Systems

Electrical Systems

Power Distribution

- Replaced defective Lantronix device at Ring service building.
- Loaded new and updated monitoring screens at the CUB PowerNet client.
- Troubleshoot OPC server to EPICS interface for the diesel generators.
- Review expansion of CLO's emergency power and proposed generator loads.
- Audit JSAs for Chestnut Ridge job.
- Checked water pump starter in Ring Ser. Building that had tripped.
- Performed final walkdown at SRF and GAP.
- Oversight inspections of duct bank and manhole installation on Chestnut Ridge job.
- Submitted DCN for front end circuits for Paul Gibson request for RM work forwarded to William

Power Supplies:

- Responded to an emergency call-in on Monday night to repair DTL_Mag:PS_DCV239 that had two blown fuses on the 15 VDC section
- Repaired IKick_Mag:PS_V02 that had a bad 24 VDC power supply
- Replaced SCL_Mag:PS_QD12 due to a faulty water flow switch
- Replaced SCL_Mag:PS_QD13 due to a water flow switch that would not indicate absence of flow
- Responded to a service call regarding several HEBT supplies that would not clear water flow and pressure interlocks; found that the water pump flow had changed and had to be increased
- Repaired the two faulty SCL supplies; they will be tested and placed into service as spares